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Fifth Annual Report

MacDONALD FARM DEMONSTRATION WOODLOT

New Nouveau Brunswick

Municipalities, Culture and Housing

Natural Resources and Energy

"Your Environmental Trust Fund at Work"

April 1, 1996 - March 31, 1997

MacDonald Farm Demonstration Woodlot

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MacDonald Farm Demonstration Woodlot

Background

On May 12, 1992 the formal proposal to establish a Demonstration Woodlot on the unmanaged portion of the MacDonald Farm Historic Site property was presented to senior staff of the Department of Municipalities, Culture and Housing and Natural Resources and Energy. An Executive Summary, a 5-year Management Plan, an Operating Plan outlining activities for the first year development, as well as an estimate of costs and funding sources, were prepared.

The proposal, accepted in principal by senior staff, was presented to the Executive Management Committee of the Department of Natural Resources and Energy for formal approval. Conditional approval was granted by the Executive Management Committee pending demonstration that funding could be obtained and would be forth coming from available sources.

On October 28, 1992, a Memorandum of Understanding was agreed to and signed by the Deputy Ministers of the Departments of Natural Resources and Energy and Municipalities, Culture and Housing. The Memorandum details the methods by which the property will be developed, maintained and operated for a 20-year period.

MacDonald Farm Demonstration Woodlot

On January 30, 1993 a permit, valid for a period of 20 years, was issued by the Minister of Municipalities, Culture and Housing under provisions of the **Historic Sites Protection Act** authorizing all activities deemed necessary to complete development of the **MacDonald Farm Demonstration Woodlot**. On June 7, 1993 the formal announcement establishing the Demonstration Woodlot was made during the opening of the MacDonald Farm Historic Site.

Goal

The **MacDonald Farm Demonstration Woodlot**, is a parcel of forested land set aside to provide woodlot owners and the general public with an opportunity to see proper forest management techniques and the benefits of integrated resource management firsthand.

The primary goal of the Demonstration Woodlot is to increase and promote woodlot owner and public awareness and education, and to demonstrate operational and experimental silvicultural techniques and equipment. Activities carried out there will harmonize with the objectives of maintaining the integrity of the site as a protected historic site.

Management

A management team was established whose responsibility it will be to carry out the overall objectives by which the property will be developed, maintained and operated. The management team has the responsibility to seek funding sources, to implement the 1 year Operating Plan, to ensure the delivery of a public relations, strategy, to prepare a reporting schedule which will allow for the completion, monitoring, and evaluation of the operating and management plans, and to review, assess and incorporate the 5 year Management Plan.

Management Team

The Management Team members for the 96-97 operating period were Charles Allain, Heritage Development Officer, Heritage Branch, MCH, John Stuart, Extension Forester, Miramichi Region, DNR&E and Dale Wilson, Manager, Woodlot Education, Forest Extension, DNR&E. The Ex-Officio members are Wayne Burley, Director, Heritage Branch, MCH, Brian Hatch, Regional Resource Manager, Miramichi Regional, DNR&E, Robert Bettle,* Manager, Forest Extension, DNR&E.

* Robert Bettle replaced Joakim Hermelin as Manager of Forest Extension, DNR&E

MacDonald Farm Demonstration Woodlot

ANNUAL REPORT

YEAR FIVE OPERATION

April 1, 1996 - March 31, 1997

The stated objectives for the 1996-97 operating year were; to continue silviculture treatments, trail maintenance and development; and the completion and placement of signs and interpretative panels in conjunction with the development of a brochure for use in self guided tours.

The fifth annual report will cover the progress to date in three areas:

1. Outreach and Education
2. A. Infrastructure
   B. On Site Development
3. Financial

1. Outreach and Education

A number of 4-H forestry field trips with members of the Napan 4-H Club were conducted on the property through the winter months. Main topics of discussion included tree and wildlife sign identification, good forestry practices as well as snowshoeing and basic survival techniques.

Three special interest groups were given a tour of the property. They consisted of, two grade eleven classes from James M. Hill High School in Chatham; MacDonald Farm site staff with the understanding that organized tours of the woodlot would be conducted one day per week; as well as the Regional Resource Manager for the Department of Natural Resources and Energy.

It should be noted that one inquiry for information regarding development of the woodlot was received as a result of exposure on the Internet.

A number of silhouettes representing common animals found on the woodlot were constructed and placed along the trails.

The silhouettes are used as a focal point with students and younger visitors with respect to wildlife, their preferred habitat and requirements.

Information developed for the 1995 Provincial Woodlot Management Field Day and displayed at the discussion/interpretation sites was inadequate to withstand the elements. As a result, the podiums required modifications.

An Ontario based Ecological Consultant with family ties in the Neguac area was reported to have completed an Inventory of Vascular Plants on the MacDonald Farm Property. This individual was located and an incomplete copy of his findings obtained.

2. A. Infrastructure

Road and Trail Maintenance

Road and trail maintenance activities consisted of; the clean-up of blowdown trees and brush; the cutting of stump sprouts and suckers where they interfered with travel; construction and repair of drainage ditches and the repairing of excessive rutting resulting from the movement of equipment.

Two picnic table shelters were constructed for use by the public as well as display sites.

2. B. On-Site Development

An application was submitted and approved through the Environmental Trust Fund for $15,000.00. Funds were used for salaries while materials and supplies were covered from the MacDonald Farm Woodlot Account. As a result, 10 individuals were employed during a 7 week period beginning September 16, 1996 for a total of 48 work weeks.

Activities included maintenance work around the Farm property, cutting the hardwood stump sprouts and suckers in the white pine shelterwood and Christmas tree development areas, replacement of a number of nest boxes, construction of a number of benches for placement along the trails and the spacing (pre-commercial thinning) of the advance regeneration from a portion of the area which was horse logged in the fall of 1995.

The Environmental Trust Fund project people also assisted with the sawing of cedar, and larch logs produced as the result of activities on the property. The lumber will be utilized on site for maintenance and construction activities.

Within the Christmas tree development area, the trees were butt pruned, sheared and fertilized at a rate of 1000 kg/ha (892 lb/ac) with 10-10-10 fertilizer.

On December 20, 1996 a storm with very strong sustained winds caused scattered but considerable blowdown. Trees were noted as being down across most trails as well as the road and within various stands. Most of the damaged trees were spruce which are considered to be more wind firm than other species.

3. Financial

A purchase pulpwood agreement for 180 M^3 (st) or 50 cords of softwood pulpwood at a delivered price of $25.39 per M^3 (st) or $92.00 per cord was signed with Repap New Brunswick Inc.

A total of 25.36 cords [91.92 M^3 (st)] of firewood were produced. Of this amount, 14.36 cords [52.05 M^3 (st)] was sold to the Bartibog Campground at $35.00 per cord. The balance of the wood was split equally between MacDonald Farm and the Newcastle Office of the Department of Natural Resources and Energy. No additional forest products were produced for sale during the year.

A summary of Revenues and Expenditures for the MacDonald Farm Woodlot for 1996-97 is contained in Appendix I.

MacDonald Farm Demonstration Woodlot

YEAR SIX OPERATING PLAN

April 1, 1997 - March 31, 1998

The objectives for the 1997-98 Operating year are:

1. Brochure
2. Silviculture Treatments
3. Spring Cleanup
4. Field Day

1. Brochure

Complete the development of a brochure for use in the self guided tours.

2. Silviculture Treatments

A number of silviculture treatments are planned and include:

a) Continue the development of the Christmas tree area with the control of unwanted vegetation, fertilization and shearing.

b) The planting of white pine at two sites by the Napan 4-H Forestry group. The first site will be the hardwood thinning area with the white pine being under planted. The hardwoods will act as a nurse crop, protecting the pine from the effects of the white pine weevil until they attain a height of 10 m (30 ft). At this time a second thinning of the hardwoods will be required.

The second area is the white pine shelterwood. It was anticipated that natural white pine regeneration would be successful at this site. The lack of ground disturbance resulting from the harvest system employed produced an unsuitable seed bed and yield no natural regeneration.

c) Complete the pre-commercial thinning of the advance regeneration in the area treated by residual removed in the fall of 1995.

d) In Stand I treatment 4, reducing the Basal Area to 18 M^2/ha. This will be the second intervention in this stand. The objective of which is to further open the stand to encourage natural regeneration.

The completion of these treatments is dependent on the approval of employment projects.

3. Spring Cleanup

This activity will involve preparing the site for public visitation and will include; removal of blowdown trees and debris from the trails, drainage of water, placement of benches and podiums, as well repairing and replacing signs as required. This will be completed by Forest Extension Service staff.

4. Field Day

A field day for participants of the Woodlot Management courses is scheduled for June 7th. The event will include a walking tour and discussion of development work on the property as well as the demonstration of small scale, low technology logging equipment.

5. Other

The completion of the Inventory of Vascular Plants is planned and is dependent on the availability of the Ecological Consultant.

It is anticipated that a walking trail can be extended into the hardwood stand at the north end of the property.

MacDonald Farm Demonstration Woodlot

Appendix I

Summary of Revenues and Expenditures

1996-97

Revenues

Balance Forward as of April 1, 1996		3 823.27
Hardwood Firewood (14.36 cords)		502.60
GST Collected		35.18
	TOTAL	4 361.05

Expenditures

Custom Sawing		444.00
Repairs		207.98
Building Materials, Supplies, Etc.		1091.24
	SUB TOTAL	1 743.22
Balancing Remaining (March 31, 1997)		2 617.83
	TOTAL	4 361.05

MacDonald Farm Demonstration Woodlot

Appendix II

Silvicultural Treatments

STAND AND TREATMENT DESCRIPTIONS

STAND NO. 1

Stand no. 1, 11.5 ha in area is the largest stand on the property and contains silvicultural treatments 1, 2, 3 and 4. Treatment no. 1 is the stand proper while no's 2, 3 and 4 are micro-sites within stand no. 1 which contain trees having greater heights and diameters.

The stand is characterized by a dense pulpwood size thicket composed primarily of black spruce with scattered larch, white pine, cedar, white birch and red maple.

Two age classes are present, 100 and 50 years for the over and understory respectively. The overstory contains only scattered residuals the result of harvesting 45-50 years ago.

Stand volume is 1500 m^3 (125 m^3/ha). Fully 83% of the volume (104 m^3/ha) is contained in black spruce 10-22 cm in diameter.

Due to poor drainage, the stand is shallow rooted and susceptible to blowdown as evidenced by storm damage which occurred during the preceding three winters. Combined with acceptable crown ratio's and lack of natural regeneration the following treatments are proposed for this stand.

TREATMENT NO. 1: Winter storms have caused blowdown and tree breakage in small patches throughout the stand. Merchantable timber within these areas will be salvaged followed by manual site preparation and planting of the open areas. The density of the balance of the stand will be reduced by means of residual removal and a light thinning.

The tenet here is a light treatment. Depending on the response, additional thinnings at 5-10 year intervals will be required.

The objective is to reduce stand density, increase individual tree diameter and volume for the purpose of pulpwood production.

TREATMENT NO. 2: is located in the south east corner of stand no. 1. This area will be left as an undisturbed control.

TREATMENT NO. 3: is located in the north-east corner of stand no. 1 and will consist of a commercial thinning. It may be possible to incorporate a control area within this treatment. Should this not be possible, then treatment no. 2 will serve as the control.

The objective here is to increase tree diameter with the aim of producing sawlogs.

TREATMENT NO. 4: runs parallel to and on both sides of the road and will consist of a commercial thinning. Objectives and methodology will be similar to treatment no. 3. A control and reserve area will also be included at this location.

STAND NO. 2

Stand no. 2 is 4.5 ha in area and contains silvicultural treatments 5 and 7.

This stand is characterized by an overstory of cedar, white pine, and black spruce, sawlog size trees with an understory of black spruce, white pine, and white birch. Scattered larch, balsam fir, red maple and hemlock are also present. Scattered patches of advance regeneration 1-3 m in height composed of balsam fir, white pine and black spruce are also present.

Age class distribution is similar to stand no. 1, except for the addition of the regeneration.

Stand volume is 660 m^3 (164 m^3/ha). White pine, cedar and spruce and fir comprise 38, 26 and 19 percent of the volume respectively.

TREATMENT NO. 5: will consist of a white pine shelterwood.

The objective is to improve over all stand quality with the removal of less desirable and poorer quality trees in conjunction with the establishment of white pine regeneration.

TREATMENT NO. 7: will consist of a mixed wood shelterwood, very similar to treatment no. 5 in prescription. The major difference being that instead of managing for a single species the objective will be to maintain existing species composition and improve overall stand quality. This treatment may border on the selection system of uneven-aged management.

Treatment unit no's 5 and 7 will over time see the removal of the mature overstory combined with the release of the younger trees.

Control and reserve areas will be maintained in both of these treatment units.

STAND NO. 3

Stand no. 3 is 5.5 ha in area and contains silvicultural treatment no's 8 and 9.

This stand shows the greatest diversity of age class and species composition. Three distinct age classes are present. As in the preceding stand, 100 and 45-50 years as well as scattered patches of advance regeneration.

With the exception of the regeneration the balsam fir has been harvested by the budworm.

Scattered red oak seedlings and saplings are present in stand 3, 4 and 6. No mature trees were observed indicating a seed source outside the property. Where found, this species will be preserved.

Stand volume is 500 m^3 (101 m^3/ha). Spruce, white birch and white pine comprise 48, 35 and 14 percent of the volume respectively. Balsam fir, red pine, red maple and poplar make up the balance. The advance regeneration is composed of balsam fir, spruce, red maple and cedar.

One unusual feature was the quantity of cedar advance regeneration present in stands 3, 4 and 6. The cedar was uniformly distributed with only the odd scattered mature tree evident.

TREATMENT NO. 8: will consist of uneven-aged management by means of the selection system. Due to the nature of the regeneration, patches will be pre-commercially thinned with manual site preparation and fill planting in the understocked areas.

The objective is for the production of softwood sawlogs and pulpwood and hardwood pulpwood and fuelwood.

Future activities will involve the periodic and partial removal of the mature and poorer quality trees, to maintain the age structure and improve over all stand quality.

TREATMENT NO. 9: involves the management of a two-storeyed stand consisting of white birch over balsam fir.

Numerous options are available for this unit. They include: maintenance of the existing structure; removal of white birch to favour the balsam fir; and removal of balsam fir to favour white birch.

The most appropriate treatment(s) for this unit will be determined upon further investigation.

Control and reserve areas will be determined in both of these treatment units.

STAND NO. 4

Stand no. 4, 5.5 ha in area, contains silvicultural treatment no's 10, 11 and 12. In general, the stand is composed of an overstory of scattered spruce and fir, white pine, cedar, white birch and red maple. The understory, depending on location within the stand is either dominated by spruce or balsam fir. Additional species include cedar, red maple and white birch.

Stand volume is 352 m^3 (70 m^3/ha). White pine, spruce, fir and red maple comprise 29, 25 and 24 percent of the volume respectively.

TREATMENT NO. 10: will consist of selective management to maintain an uneven-aged structure.

The objective is to preserve the existing white pine, promote natural pine regeneration and improve stand quality by removing poorer quality trees.

TREATMENT NO. 11 and 12: are similar in that the hardwood dominated overstory, which is of poor quality, will be removed, while the spruce and balsam fir advance regeneration will be pre-commercially thinned. The best balsam fir dominated area will be cultivated for Christmas Trees while the spruce dominant area will be managed for pulpwood/sawlog production.

Control and reserve areas will be maintained in all three treatment units.

STAND NO. 5

Stand no 5 is 1.5 ha in area and contains silvicultural treatment no. 13.

This stand is wet and shallow rooted with patches of blowdown.

TREATMENT NO. 13: will consist of the salvage of blowdown and storm damaged timber. A light thinning will also be necessary.

Volume figures are not available due to the small size of stand.

STAND NO. 6

Stand no. 6, 4.5 ha in area, contains silvicultural treatment no. 14. Stand no. 6 is similar to stand no. 4 in structure. However, the hardwood dominated overstory has been replaced with softwoods while the understory of advance regeneration composed of spruce and balsam fir remains unchanged.

Stand volume is 285 m^3 (71 m^3/ha). Spruce and balsam fir, white pine and maple comprise 67, 15 and 8 percent of the volume respectively.

TREATMENT NO. 14: will consist of selective management to maintain the overstory for as long as possible, and release the understory by means of a pre-commercial thinning.

The objective is management for the production of softwood pulpwood and sawlogs.

Future activities will require the gradual removal of the mature overstory with merchantable thinning in the younger understory.

Control and reserve areas will be maintained in treatment unit no. 14.

STAND NO. 7

Stand no. 7 is 1.5 ha in area and contains silvicultural treatment no. 15.

This stand is characterized by an overstory of spruce, red maple, sugar maple and beech. Scattered yellow birch and cedar are also present. Advance regeneration includes sugar maple, white birch and spruce and balsam fir. Striped maple is present in considerable numbers as an understory.

A large seep or small spring with a large pool of water is present. No drainage pattern is evident but it is believed that the water drains into stand no. 5.

TREATMENT NO 15: will consist of selective management of the tolerant hardwoods.

The objective will be to gradually remove the striped maple to permit the regeneration of the more desirable tolerant hardwood and make browse available for wildlife.

SILVICULTURAL TREATMENT NO. 6: will reforest a cleared strip along the western property boundary.

White pine and sugar maple will be planted at the lower and upper ends of strip respectively. The area in between will be planted with fruit and nut bearing trees and shrubs of benefit to wildlife.

DISPOSAL OF FOREST PRODUCTS

Harvested forest products will be disposed of in accordance with accepted Government policy.